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Part 1

W. J. FRANCIS

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Ontario. Hydro-Electric Inquiry Commission
Engineering data



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WALTER J. FRANCIS & COMPANY.

COPY FOR ENCLOSURE TO

H. E. T. Hare *Has been*

MEMORANDUM RE PROFESSIONAL WORK OF

WALTER J. FRANCIS.

Montreal, Que.,

March 1st, 1924.

Consulting Engineer, 280 St. James Street, Montreal, Born, Toronto, Ontario, January 28th, 1872, son of Joseph and Elizabeth Francis; Educated, Ontario Public Schools; Toronto Collegiate Institute; University of Toronto; Honour Graduate of Ontario School of Practical Science, in Civil Engineering, 1893; Toronto University Degree of C. E.; Inspector and draughtsman on construction of Toronto Belt Line Railway, 1889-1893; Topographer on Nipissing and St. James Bay Railway Location, summer 1893; Assistant engineer in charge of design and construction of Toronto Union Station, cost \$700,000, 1893-1896; Chief Draughtsman on bridge construction for Central Bridge and Engineering Company, Peterborough, Ontario, 1896-1897; in service of Department of Railways and Canals of Canada, 1898-1906; (designed and had charge of the construction of two hydraulic lift locks on Trent Canal, costing about a million dollars each; also, Division Engineer-in-charge of ten miles of canal construction, costing over a million dollars; awarded the Gzowski medal for 1906, by the Canadian Society of Civil Engineers, for paper describing the two lift locks); in charge of construction of 32,000 h.p. hydro-electric plant at Bonnington Falls, B.C., for the West Kootenay Power Company, and representing Ross & Holgate, 1906, cost about \$1,200,000; Assistant Manager and Chief Engineer of the Dominion Engineering and Construction Company, Montreal, 1907; (work done in general contracting and reinforced concrete buildings amounted to about one million dollars); engineer for Royal Commission of Inquiry into Quebec Bridge disaster, studied and reported on wreck, developed in detail the theory for the collapse, 1907 (see drawing No. 19 of the Commission's report to the Governor-General-in-Council, 1908); arbitrations, valuations, etc., on sundry cases for the courts; Granger Building collapse; appointed exclusive Canadian writer for the "Engineer" of London, England, 1908; examinations and reports on various hydro-electric power propositions; report on hydro-electric power station for Campbellford, Ont., 1909, (took over the engineering, demolished and reconstructed the plant); preliminary survey and report on two-million-dollar hydro-electric proposition on the North Saskatchewan River, near Edmonton, 1909; report on public utilities of the City of Edmonton, Alberta, with investigations into costs and operation of the same, 1910; examinations and reports on various hydro-electric propositions, 1910; examinations and report on Herald Building disaster, Montreal, which case involved the destruction of the building and overhead sprinkler tank, and the loss of over thirty lives, 1910; examinations and report on the Boxer Building collapse, Montreal, 1910; examinations and reports of elevated water tanks of Montreal, 1910; examination and report on construction of the Don syphon for the main intercepting sewers for the City of Toronto, 1910; representing the Canadian Society of Civil Engineers on committee appointed by City of Montreal to revise the building by-laws of the city, 1910; later appointed

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MEMORANDUM RE PROFESSIONAL WORK ON

WALTER T. FRANCIS.

Montreal, Que.
March 1st, 1904.

Consulting Engineers, 260 St. James Street, Montreal, Ontario, Ontario
Tunisia 2842, son to Josephine Hirschfelder, Montreal, Quebec, Ontario
Public Schools; Toronto College Institute; University of Toronto; Hospital
Gresham's of Ontario School of Toronto on construction of
Toronto University Degree of C. E.; Inspector and engineer of
of Toronto Best Western, 1883-1883; Toronto Hospital on Magazine and St. James
Bay Bilingual Post Office, Summer, 1882; Assistant Engineer in construction of
construction of Toronto Union Station, cost \$100,000, 1882-1883; City of Lethbridge
Borden, Ontario, 1883-1883; in service of Bilingual Government, Borden
was on bridge construction for Canadian Bridge and Bilingual Government
of Quebec, 1883-1883; (designed and had charge of the construction of two
bridges 111' long on Trent River, costing about a million dollars each);
over a million dollars; designed for the Canadian
Society of Civil Engineers, for paper reading at Borden Best Western, B.C.
of construction of 35,000 ft. bridge at Borden, 1883,
for the West Borden Power Company, and telephone line from Borden
cost about \$1,200,000; Assistant Member of City of Borden
Bilingual and Government Government, Montreal, 1903; (work done in service
construction and telephone company, Montreal, 1903; about one million
dollars); engineer for Royal Commission to India into Indian Affairs
selected by the Government of India to the service of the Government-General in
1903 (see discussion No. 19 of the same year);
Government, 1903); stipulations, conditions, etc., on many occasions for the
Government Bilingual offices; designed and supervised
of London, England, 1903; examination of various
power transmission; report on hydro-electric power transmission for the
out, 1903 (from over the power transmission hydro-electric power
Bilingual service and report on power transmission hydro-electric power
on the River Saguenay River, near Hemmingford, 1903; report on public utility
of the City of Hemmingford, 1903; examination of various hydro-electric power
of the same, 1903; examination and report on Hemmingford Bilingual power
time, 1903; examination and report on Bilingual power
case involved in the preparation of the report on the Borden
the case of over 1000 miles, 1903; examination and report on the Borden
Bilingual offices, Montreal, 1903; examination and report on construction of the Borden
time of Montreal, 1903; examination and report on Hemmingford Bilingual power
for the main hydroelectric power plant for the City of Hemmingford, 1903; examination
the Canadian Society of Civil Engineers, Borden, 1903; report on construction of a
Montreal to leave the public works department for the City of

(2)

Chairman of the sub-committee of same; sundry court cases involving engineering questions, 1910; report on hydro-electric and steam-electric plants for the City of Quebec, 1910; reports on various hydro-electric propositions, 1910; took Mr. Frederick B. Brown, M.Sc. into partnership, 1910. Since 1910 his work has included among other things, designs and reports on a great number of hydro-electric and steam power plants; investigations and reports on buildings, especially foundations; investigations, reports and advice on many important structures; court work; construction of Moose Jaw Water supply. (\$600,000 construction in eight and one-half months. See "Engineering Record" June 21st, 1913); designs for 250,000 H.P. hydro-electric plant at Carillon, probable expenditure over \$18,000,000.00; investigation of Edmonton Water Supply and of underground electrical distribution; waterworks, roads, and so forth, for municipalities; electrical engineer for Protestant Board of School Commissioners, Montreal; sewer cases in Redcliff (Alberta), Maisonneuve, St. Lambert, Lachine and Westmount, Quebec, 1914; water supply, Ottawa, Canada; asphalt pavements, Westmount, Quebec, 1914 and 1915, sewer cases, Peterborough, Ont.; pavements and sewers, St. Lambert, Quebec; expropriation proceedings, Power Co., Peterborough, Ont.; large building foundations, Montreal; building questions in connection with Mount Royal Tunnel, Montreal; engineering of New Brunswick Metals, Lake George, N.B.; munition plant and freight vessel work 1914-1918; City of Sherbrooke hydro-electric power reports; munition plant power problems; Montreal aqueduct report by Ratepaying Engineers; Montreal aqueduct reconstruction, and completion as Member of Montreal Water Board; municipal electric lighting systems for Montreal West; 100,000- H.P. hydro-electric development on Gatineau River; Hydro-Radial Railway enquiry, Ontario; reference of matter of Dominion Iron & Steel Company, and Federal Government regarding construction of large plate mill and contract for ship plates; advisory engineering services for Royal Commission of Inquiry into Hydro-Electric Power Commission of Ontario; power contracts Welland Ship Canal construction; advisory engineering for Lower St. Lawrence Power Company; design and supervision of hydro-electric power plant on Otonabee River, Peterborough; professional services for public utility companies and law firms, involving arbitrations, valuations, vibrations, rates, and other engineering questions.

American Institute of Surveyors and Engineers Inc. (New York).
Charter Member.

Institution of Civil Engineers. (Great Britain).
Member, elected 1913.

Engineering Society, University of Alberta.
Life Member.

Engineering Alumni Association, University of Toronto.
Charter Member.
President, 1920, 1921, 1922.
Secretary, 1923, 1924.

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YERSEY OF TORONTO, 1900-1901.
Member of Montreal Branch, 1900.
Vice-President, Montreal Branch, 1900.
Member of Executive Committee, Montreal Branch 1901, 1902, 1903, 1904.

WALTER J. FRANCIS

Member, Rotary Club of Montreal, elected 1916.
President, Rotary Club of Montreal, 1917. Montreal, Que.,
March 1st, 1924.
Rotary-Secretary, Rotary Club of Montreal, 1918 to 1921.
Chairman, Inter-City Relations Committee, International, 1917.
Member, Foreign Relations Committee, International, 1916-1924.
Engineering Institute of Canada (formerly Canadian Society of Civil Engineers).
Associate Member, 1896-1902.
Member, elected 1902.
Life Member, 1923.
Gzowski Medallist, 1906.
Councillor, 1910, 1913 to 1918.
Chairman of Montreal Branch, 1916 to 1919.
Vice President of the Institute, 1919, 1920, 1921, 1922.
President of the Institute, 1923, 1924.

Corporation of Professional Engineers of Quebec.

Charter Member. COPY Montreal Association, 1921-1923, 1925-1926.
Vice-Chairman, 1920. Montreal Association, 1923-1924

Canadian Engineering Standards Association.

Member Main Committee, 1917 to 1924.

World Power Conference.

Member

American Society of Civil Engineers.

Associate Member, 1901 to 1904.
Member, elected 1904.

American Institute of Consulting Engineers Inc. (New York).

Charter Member.

Institution of Civil Engineers. (Great Britain).

Member, elected 1913.

Engineering Society, University of Toronto.

Life Member.

Engineering Alumni Association, University of Toronto.

Charter Member.

President, 1920, 1921, 1922.

Councillor, 1923, 1924.

MEMORANDUM RE AFFILIATIONS AND INTERESTS

to

WALTER J. FRANCIS

Montgomery, June 1,

Montgomery, 1934.

Bridgeman's Insurance Institute of Quebec (Tolmetia Quotidian Society of Civil Engineers).

Associate Member, 1898-1903.

Member, Selected 1903.

Title Member, 1923.

Goswami Member, 1903.

Goswami, 1910, 1912 to 1918.

Vice President of the Institute, 1920, 1921, less.

President of the Institute, 1923, 1924.

Corporation of Physicians, the members of the same.

Associate Member, 1920.

Associate Member, 1920.

Canadian Maritime Maritime Association.

Member from Committee, 1914 to 1924.

Molybdenum Committee.

Member

American Society of Civil Engineers.

Associate Member, 1901 to 1904.

Member, Selected 1904.

American Institute of Quarantine Engineers Inc. (New York).

Associate Member.

Institution of Civil Engineers (Great Britain).

Member, Selected 1913.

Engineering Society University of Toronto.

Title Member.

Engineering Alumni Association, University of Toronto.

Associate Member.

President, 1930, 1931, less.

Goswami, 1923, 1924.

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University of Toronto, Alumni Association.

Member of Montreal Branch.

Vice-President, Montreal Branch, 1920.

Member of Executive Committee, Montreal Branch 1921, 1922, 1923, 1924.

Rotary International.

Member, Rotary Club of Montreal, elected 1916.

President, Rotary Club of Montreal, 1917.

Honorary-Secretary, Rotary Club of Montreal, 1918 to 1921.

Chairman, Inter-City Relations Committee, International, 1917.

Member, Foreign Extensions Committee, International, 1918 to 1920.

Member, Canadian Advisory Committee, International, 1919-1920, 1920-1921.

Member, Classification Committee, International, 1921-1922.

Westmount Municipal Association.

Member.

Director, 1919, 1920, 1921.

Boy Scouts Association.

Member.

Member, Montreal Executive, 1920, 1921, 1922, 1923.

Chairman, Montreal Wolf Cub, 1921, 1922, 1923.

Vice-President, Montreal Local Association, 1921-1922, 1922-1923.

President, Montreal Local Association, 1923-1924

Representative of Montreal Council to Quebec Provincial Association, 1923-1924.

Montreal Board of Trade.

Member.

Montreal Civic Improvement League.

Member.

Director, 1921, 1922, 1923, 1924.

American Public Health Association.

Member.

American Waterworks Association.

Member.

Montreal Homoeopathic Hospital Association.

Member.

Director, 1914 to 1924.

Vice-President, 1917.

Shriners Hospitals for Crippled Children.

Charter Member.

Director, 1922, 1923, 1924.

Secretary, 1922, 1923, 1924.

Member of Executive Committee, Interim Government, 1933-1934.

Member of Montevideo Board

Montevideo, Uruguay, 1933-1934.

Member, Rotary Club of Montevideo, before 1934.

President, Rotary Club of Montevideo, 1934.

Montevideo-Soriano, Rotary Club of Montevideo, 1934-1935.

Montevideo, Inter-American Relations Committee, 1934-1935.

Member, Inter-American Information Committee, 1934-1935.

Member, Inter-American Information Committee, 1935-1936.

Member, Inter-American Information Committee, 1936-1937.

Member, Inter-American Information Committee, 1937-1938.

Member, Inter-American Information Committee, 1938-1939.

Member, Inter-American Information Committee, 1939-1940.

Member, Inter-American Information Committee, 1940-1941.

Member, Inter-American Information Committee, 1941-1942.

Member, Inter-American Information Committee, 1942-1943.

Member, Inter-American Information Committee, 1943-1944.

Member, Inter-American Information Committee, 1944-1945.

Member, Inter-American Information Committee, 1945-1946.

Member, Inter-American Information Committee, 1946-1947.

Member, Inter-American Information Committee, 1947-1948.

Member, Inter-American Information Committee, 1948-1949.

Member, Inter-American Information Committee, 1949-1950.

Member, Inter-American Information Committee, 1950-1951.

Member, Inter-American Information Committee, 1951-1952.

Member, Inter-American Information Committee, 1952-1953.

Member, Inter-American Information Committee, 1953-1954.

Member, Inter-American Information Committee, 1954-1955.

Member, Inter-American Information Committee, 1955-1956.

Member, Inter-American Information Committee, 1956-1957.

Member, Inter-American Information Committee, 1957-1958.

Member, Inter-American Information Committee, 1958-1959.

Member, Inter-American Information Committee, 1959-1960.

Member, Inter-American Information Committee, 1960-1961.

Member, Inter-American Information Committee, 1961-1962.

Member, Inter-American Information Committee, 1962-1963.

Member, Inter-American Information Committee, 1963-1964.

Member, Inter-American Information Committee, 1964-1965.

Member, Inter-American Information Committee, 1965-1966.

Member, Inter-American Information Committee, 1966-1967.

Member, Inter-American Information Committee, 1967-1968.

Member, Inter-American Information Committee, 1968-1969.

Member, Inter-American Information Committee, 1969-1970.

Member, Inter-American Information Committee, 1970-1971.

Member, Inter-American Information Committee, 1971-1972.

Member, Inter-American Information Committee, 1972-1973.

Member, Inter-American Information Committee, 1973-1974.

WALTER J. FRANCIS & COMPANY.

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Masonry, - A. F. & A. M.

Corinthian Lodge, No. 101 G. R. C.; Member, 1901.
" " " " J. W., 1906.
" " " " Life Member, 1923.
Royal Albert Lodge, No. 25 G. R. Q.; Member, 1911.
" " " " J. W., 1920.
" " " " Life Member, 1921.

R. A. M.

Corinthian Chapter, No. 36 G.R.C.; Member, 1902.
" " " " Z, 1905-6.
" " " " Honorary Life Member, 1923.
Carnarvon Chapter, No. 5 G.R.Q.; Member P.Z., 1910.
Fairmount Chapter, No. 14 G.R.Q.; Hon. Member, 1915.
Westmount Chapter, No. 17 G.R.Q.; Hon. Member, 1922.
Royal Victoria Chapter, No. 18 G.R.Q.; Hon. Member, 1922.
Grand Chapter of Quebec; D.G.S. Montreal District, 1915.
" " " " ; Grand Second Principal H., 1918-19.
" " " " ; Grand First Principal Z., 1920-21, 1921-22.
" " " " ; I.P.G.Z., 1922-1923, 1923-1924.

K. T.

Moore Preceptory; Member, 1903.
" " " " , P. P., 1904-5, 1905-6.
" " " " Life Member, 1923.
Sovereign Great Priory of Canada; Grand Captain of the Guard, 1921-22.

R. & S. M.

Victoria Council, No. 13; Member, 1911.

A. A. O. N. M. S.

Rameses Temple, Toronto; Member, 1902 to 1911.
Karnak Temple, Montreal; affiliated, 1911.
" " " " ; Life Member, 1922.
" " " " ; Representative to Imperial Council, 1924.

A. & A. S. R.

Hochelaga Grand Lodge of Perfection; Member, 1915.
Hochelaga S.C.R.C.; Member, 1917.
Montreal Sov. Consistory; Member, 1918.
" " " " ; 32nd Degree, 1920.

Royal Order of Scotland.

Prov. Grand Lodge and Grand Chapter, Montreal; Member, 1921.

Montreal Masonic Memorial Temple Corporation.

Member.
Director, 1923, 1924.

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Government Glass Pictures of Objects; Glass Objects of the Glass, 1935.

Advertisers Committee, No. 12; Member, 1934.

Hooper's Quay Page to Bellot; Newell 1930.

WALTER J. FRANCIS & COMPANY.

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University Club of Montreal.

Member, elected 1913.

Life Member, 1920.

Royal Societies Club, London, Eng.

Member, elected 1913.

National Club, Toronto.

Member, elected 1922.

Family Relationships and other Notes.

Married 1896 to Laura Elizabeth Grainger of Toronto.

Has two sons, Lieut. Edward W. Francis, R.A., born 1897, and
Francis Francis, (McGill Undergraduate), born 1905.
Residence, 444 Prince Albert Avenue, Westmount, Que.,

C O P Y

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2. *Scutellaria* *lanceolata* *L.*

3. *Scutellaria* *lanceolata* *L.*

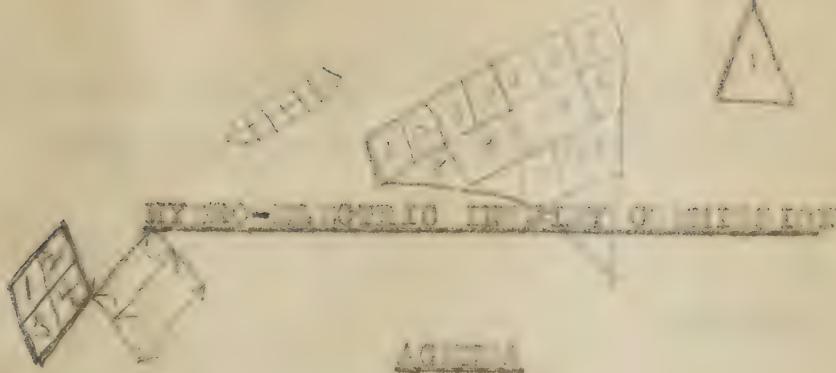
4. *Scutellaria* *lanceolata* *L.*

5. *Scutellaria* *lanceolata* *L.*
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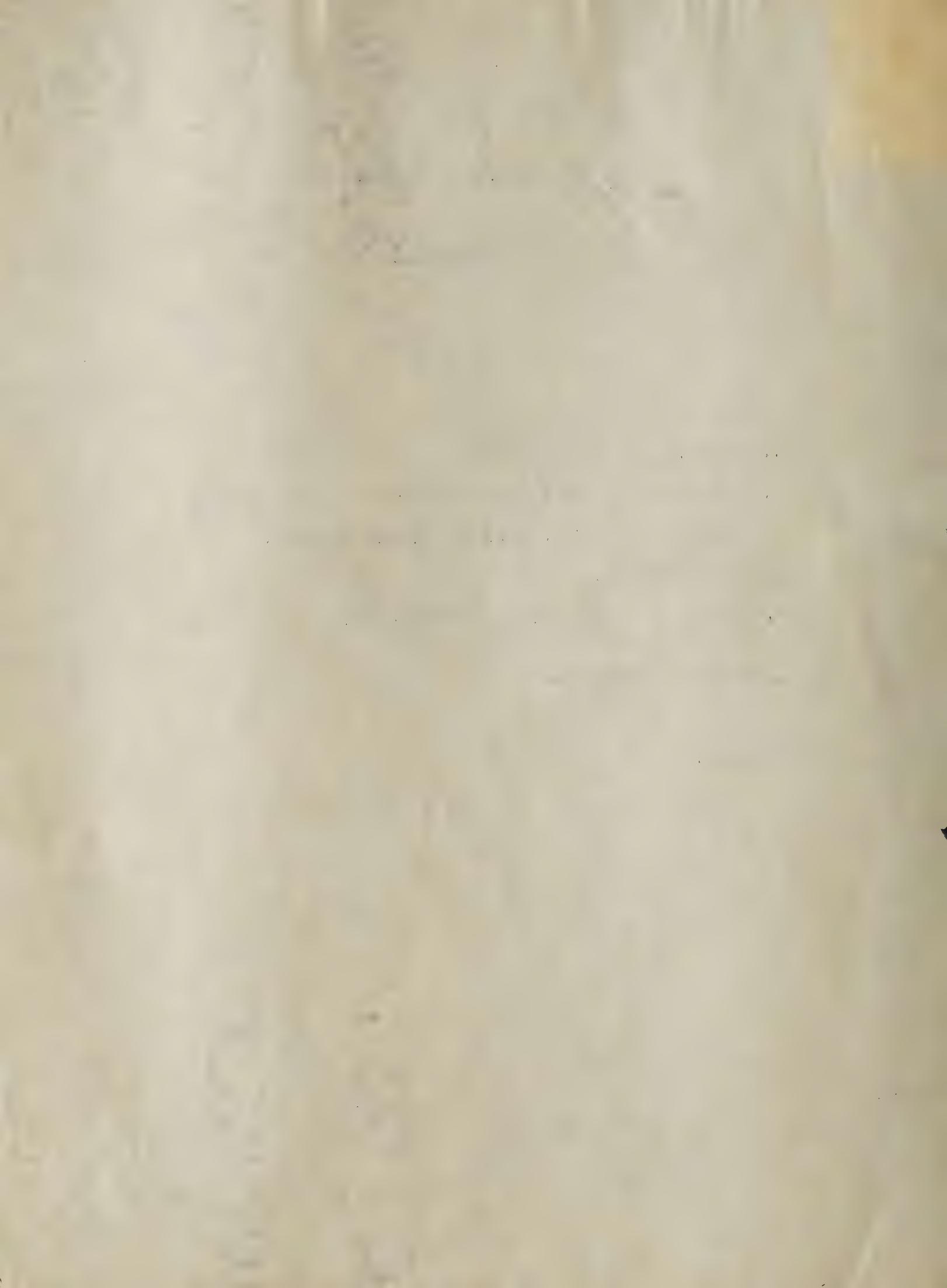


Toronto,
Friday,
19th May, 1922.

- ✓ 1. Minutes,
- ✓ 2. Report on Interview with Premier re Mitchell.
- ✓ 3. Engagement of Mr. Bell re Press reports.
- ✓ 4. Re Secretary.
- 5. Are we leaving undone anything that we ought to be doing?
- 6. General Business.

DKW/HBP.

President Secretary Editor Business Manager
Carson Editor Business Manager



MR.
"H. R. C. CLARKSON & SONS" HEADING
TRUSTEES, RECEIVERS, LIQUIDATORS

15 Wellington St. West,

TORONTO, June 3, 1922.

P. W. Wogenast, Esq.,
Bank of Hamilton Building,
TORONTO.

Dear Sir:-

re Hydro-Electric Power Commission.

You have requested me to prepare a memorandum for the assistance of the Commission of Enquiry, of which you are Secretary, in respect of -

(a) The conditions existing in regard to the necessity or non-necessity to provide sinking funds out of the cost of power charged to the Niagara System in respect of the \$8,000,000. of bonds issued by the Hydro-Electric Power Commission of Ontario and guaranteed by the Province of Ontario in connection with the purchase \$10,000,000. of shares of the capital stock of the Ontario Power Company, and

(b) The bases prevailing for payment to the Province of Ontario of interest on its advances to the Commission and the allocation of such interest charges by the Commission.

In reply thereto I would state -

re Ontario Power Company.

Prior to 1917 there was no power in the Commission to construct or purchase works otherwise than out of advances made to it by the Province under the terms of the Power Commission Act, but in 1917 provisions were added to the Act whereunder the Commission was authorized to acquire shares in any incorporated company carrying on the business of developing, supplying or transmitting electric power or energy and to issue bonds, debentures or other securities in payment of such stock; while the Lieutenant Governor in Council was authorized to guarantee payment of principal and interest of such bonds and to guarantee performance of any contract for purchase of the shares of such a company. These provisions were undoubtedly passed by the Legislature in direct anticipation of the purchase of shares of the Ontario Power Company.

F.W.Wegenast, Esq.

-2-

June 3, 1922.

As of date April 1st, 1917, the Commission purchased \$9,000,000. par value of shares of the Ontario Power Company out of a total capital issue of \$10,000,000. at a price of 80, and it was provided that the Commission would or could purchase the remaining outstanding \$1,000,000. of stock as the same became available at a similar price. In purchase of the shares the Commission issued forty year bonds, bearing 4% interest, and guaranteed by the Province.

With the purchase effected in such manner, the following conditions obtained -

1. The Commission was the holder of a large majority of the capital stock of the Ontario Power Company but not the owner of the whole of the issued capital, a portion of which remained in the hands of the Public.

2. With shares of the Company in the hands of the Public and bonds and debentures issued by the Companies outstanding to the extent of many millions of dollars, the Ontario Power Company had to be operated as a separate entity and it was not possible to merge the works of the Company into the Niagara system.

3. There was no provision in the bonds issued by the Commission (for purchase of the shares of the Ontario Power Company) for setting aside of any sinking funds to redeem such bonds while, also, under section 23 of the Power Commission Act sinking funds were required to be provided (by way of inclusion in the cost of power to the municipalities) only in respect of such works as had been constructed out of advances made by the Province of Ontario to the Commission. Guarantee of the bonds by the Province was not an advance to the Commission - in the opinion of Counsel - within the meaning of section 23 of the Power Commission Act. Under the above conditions there was apparently nothing in the Power Commission Act requiring that sinking funds be charged into the cost of power to the Niagara system for amortization of the bonds of the Commission issued in purchase of the shares of the Ontario Power Company.

In the fiscal years ending October 31st, 1918, 1919 and 1920, the operations of the Ontario Power Company did not - with certain exceptional costs which were met with - produce revenues sufficient to meet the full costs of renewal or to provide any sinking funds. With this the case attention was drawn to the fact that while Sinking Funds were being provided in respect of the remainder of the works of the Niagara System, they were not being set up in respect of the cost of the shares of Ontario Power Company and that if this policy continued the Hydro Municipal basis - also with maturity of the bonds there might be no funds to meet them - would be departed from to a substantial extent in respect of the Ontario Power Company.

Discussions then took place as to the exact basis upon which the shares of the Ontario Power Company were held by the Commission - that is to say, as to whether the undertaking of that Company ought properly be considered as operated as an entity separate and distinct from the Niagara system, and at the risk of the Commission - as owners of it - or in the alternative as to whether it was held and operated by the Commission as Trustees for the municipalities of the Niagara system.

Acting under a general permission authorizing me to take legal advise in connection with any points that arose with the audit of the accounts of the Hydro Commission, I laid the matter before Mr. George H. Kilmer, K. C. who gave it as his opinion that the Commission held the shares of the Ontario Power Company as Trustees for the municipalities of the Niagara system. Even with that the case, however, there was no provision in the Act requiring that sinking funds should be provided in the cost of O.P.C. power to the municipalities of the Niagara System in respect of the debentures issued by the Commission to purchase the shares of the Ontario Power Company.

Under the above conditions the situation was reported by me - informally - to the Government, with a recommendation that the matter be discussed with the Commission and legislation passed for the adoption of such a basis in respect of dealing with the matter as might be agreed upon; later in my 1920 Report the state of affairs was formally set out, with a recommendation that the matter be settled so that any basis adopted in dealing with the matter in the accounts of the Commission might have legal authority.

Later and in 1921, the matter was further discussed with the Commission, when it was resolved to put the accounts of the Ontario Power Company on a strictly Hydro municipal footing so that such a cost should be charged for power delivered by the Ontario Power Company to the Niagara system as would meet all operating costs, charges for renewals, interest on the bonds issued by the Commission in purchase of shares of the Company, and a sinking fund to repay such bonds. It may be found to be necessary to pass legislation to clarify the situation to provide legal authority for such course to be followed.

Interest Payments to the Government by the Province and Agreements thereof between the Municipalities as against the costs of construction

When the Power Commission Act first came into force it was provided that interest at the rate of 4% should be paid to the Government in respect of all advances made by it to the Commission. During the period of construction of the works interest at this rate was added to the cost of the works and

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F.W. Wegenast

-4-

June 3, 1922.

after their completion interest was included in the operating expenses at the rate of 4% per annum in respect of the cost of such works. Subsequently and at a later period interest rates became higher and it was found that the Province was not able to borrow money at 4%. Accordingly the Act was amended to provide that the Commission should pay to the Province interest at the actual rates paid by the Province in respect of any moneys advanced to the Commission, and this policy has been adhered to since the passing of such amendment.

With advances made from time to time by the Province at varying rates of interest the exact interest costs and rates have been charged in respect of investments in Chippawa, Nipigon the Third Pipe line and other large developments where the expenditures upon the same could be segregated. It was found absolutely impossible, however, to so allocate the advances as to determine the exact rates and amounts of interest to be paid in respect of the smaller constructions and in respect of the operations of the various systems excepting Nipigon and the Third Pipe line; accordingly the interest charges in respect of the works other than those mentioned have been combined in each year and after crediting interest received by the Commission at higher rates on amounts due by municipalities which were debtors, a net and average rate has been struck and the interest proportioned at such rates in each year; thereafter it has been charged against the works under construction and against operations in respect of work which were complete and in operation.

The conditions of affairs relative to interest was mentioned and reported upon in one of my audits.

Yours truly,

G.T.CLARKSON (Signed)

RAHOVER PORTLAND CEMENT COMPANY

Information is that the Hydro Commission furnished funds for the construction of this plant or at least for part of it. It has been stated that the financing of the quarry, railroad, two and a half miles of sidings, power line, substations and stepping-down stations at a total cost of \$1,250,000 was furnished by the Hydro Commission and that the property is carried on the Hydro Books at \$375,000. It is further stated that the whole plant was sold by the Hydro Commission for \$340,000. It is suggested that Mr. Landis be asked to corroborate above or to secure details of the whole transaction.

1. 137. April 24th, 1922.
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2. 181.

INTAKE

The mouth of the Welland River was chosen as the most practicable and favorable site for the intake for the Queenston-Chippawa Development for the following reasons.

(1) - Because the limiting factors in the problem as a whole made it necessary to draw Niagara River water from that portion of the main river known as the Chippawa-Grass Island Pool, into the lower portion of which the Welland River discharges.

(2) - Because four miles of the Welland River itself constitutes the first reach of the power canal.

(3) - Because the mouth of the Welland River lies in a shallow bay about three-quarters of a mile below Slater's Point. This point has a tendency, under quiescent wind conditions, to throw the flow of ice out into the centre of the Pool, leaving open water in front of the intake site.

(4) - Because the deepest water in the Pool lies along the Canadian shore in the vicinity of the mouth of the Welland River.

(5) - Because the highest velocities in the Pool were in the lower reaches of the same, at and below the mouth of the Welland River.

While certain natural conditions were taken advantage of, as above summarized, it was necessary to supplement and strengthen these natural advantages by careful attention to the layout and design of the intake works.

The two main discounting factors to be overcome by this means were:

(a) - The inadequate natural depth of water in the Chippawa-Grass Island Pool, as related to the problem of diverting the required quantity of water into the improved channel of the Welland River within reasonable limits of velocity of flow.

(b) - The low transporting velocity of the water in the main river as related to the problem of drawing the required quantity of water through the intake structure, and providing at the same time for the transportation of ice across the face of the intake without being drawn in with the diverted water.

Item (a) above was disposed of simply by removing approximately 14 feet of boulder-clay overburden from the bed-rock underlying the intake site, thus making available a clear depth of 28 to 30 feet on the sills of the sluice openings.

Item (b) was a much more serious problem, owing to the low natural transporting velocities in the main river and to the fact that the flow of ice therein is very largely governed, as to location, by the direction of the wind. North, north-east or easterly winds have an unceasing tendency to make floating ice hug the Canadian shore and frequently this ice has been forced one quarter of a mile up the Welland River, against the current. It is evident therefore, that with the flow of the Welland River reversed by the diversion of a large quantity of Niagara River water, the tendency of the prevailing winter winds to force ice into the mouth of the Welland River would be multiplied enormously. This fact constituted the outstanding problem to be solved by the intake design, and led to an exhaustive study which extended over a period of two years, for the sole purpose of devising some means of abstracting ice-free water from the Niagara River.

The necessity for obtaining this result to the greatest extent possible was dictated by two important factors:

(1) - The necessity of protecting the turbine runners from injury by ice, or from debris carried by ice. The large capacity of the individual units, and the consequent large loss of revenue due to shutdown, together with the heavy cost of repair work, justified refined methods of protection.

(2) - The fact that the industrial life of Western Ontario will ultimately be wholly dependent upon Neenston-Chippewa power, to an ultimate extent of possibly over one million horse-power.

Such being the case, continuity of service is called for to the greatest possible extent, and by any possible means that can be devised.

The scope and results of the studies above mentioned have been fully covered in the report of Mr. R.D. Johnson and in the report on field experiments carried out by Professor Angus under the direction of the Commission's engineers. These reports are submitted herewith.

The final intake design resulting from these investigations is shown on the general plan attached. The structure shown on this plan is really two separate and distinct intakes which can be operated either separately and alone, or in any degree of combination. The portion of the structure which will be visible upon completion is nothing more than a safely designed intake of the ordinary breast-wall type, consisting of a series of equally spaced piers, founded on rock, with sluices between and controlled by gates which can be depressed to any depth below the water surface that may be necessary to meet operating conditions. This open sluice intake has sufficient capacity for a maximum supply of 25,000 cubic feet per second.

The invisible portion of the structure is a complete intake in itself, consisting of six twenty foot diameter tubes laid in the

bed of the river, with their upper surfaces about 14 feet below water level. Water is drawn from the bottom of the river into a slot in the top of each of these tubes and discharges into space behind the breast-wall through gate-controlled circular openings in the breast-wall piers. The velocity at which the water is drawn into these slots is very much less than the velocity of the water passing down stream over the tubes, so that it is not possible for ice and other material floating on the surface to be drawn down vertically 14 feet into the slots. These tubes in themselves have sufficient capacity to supply all the water required, and when ice conditions are at their worst, the breast-wall intake can be entirely closed and ice-free water can be supplied through the submerged intake tubes.

Plan 7-2-657-d shows the extent of the work it is proposed to undertake immediately in connection with the intake. It will be seen that the work to be done covers the breast-wall intake alone, with the only exception that the diffusers and circular openings in the piers are provided against the necessity of building the submerged tube intake at some future time. As above mentioned, the breast-wall intake shown on this plan is complete in itself for the full development and whether or not the supplementary tube intake will be necessary, must be proved by future experience in operation.

The total gross cost of the work done on the intake to date is \$1,035,178.65. This covers dredging, cofferdam, construction, pumping, material and dock facilities, preliminary work for concrete plant, and all overheads, including engineering, administration, superintendence, insurance, right-of-way, law costs, interest, etc. Of this amount \$765,000.00 covers actual work done and plant overhead, etc. charge to intake work up to Dec. 31st; The balance of \$270,178.65

covers expenditures on sheet piling, concrete plant and overhead which were chargeable to future work to be done on this project this year.

In the tenders recently received for the completion of the breast-wall intake, the lowest net tender totalled \$436,727.50. Adding 15% to this total to cover engineering, contingencies and administration overheads, together with a net amount of \$10,000.00 for material and equipment supplied by the Commission, the total cost to complete becomes \$482,727.50. Adding to this the total previously expended, the grand total cost of the breast-wall intake becomes \$1,637,414.00. This investment will provide a structure which will meet the requirements of the ultimate installation under conditions of maximum flow. The extent to which it will protect the generator plant from the ice hazard remains to be ascertained by operating experience.

The above mentioned tender covers the cost of removing the sheet-piling in the gallery-dam, but does not provide for removing the fill. This item was not taken into account by reason of the fact that it will ultimately wash out of itself at a more or less uncertain rate. In any case, all the earth excavation is entirely necessary will be the equivalent of about 40 feet at the lower end of the fill. This will involve the removal of about 30,000 yards of soft material, and after that the rate of runoff will determine the extent to which additional excavation work, if any, will be necessary. On the basis of 1914 labor and dredger costs at Chicago, 40 cents per yard, an estimate figure for this work should be 50 cents, or \$15,000.00 for the total of 30,000 yards. This added to the previous grand total of \$1,637,414.00 makes a final total

of \$1,653,900.00 for the completed intake ready for operation.

The temporary channel now supplying the Queenston plant has an average effective section of 2,000 square feet, and is 700 feet long.

If the intake were not completed in time to supply water for 5 units, it might be necessary to draw 9,000 second feet of water through this channel. This would mean an average velocity of 4-1/2 feet per second and would give rise to impossible conditions during ice periods. To reduce this velocity to the more reasonable limit of 2 feet per second would require the removal of an additional 60,000 yards of material, which at 55 cents per yard, would mean an expenditure of \$33,000.00. In addition to this it would be necessary to place a heavy hanging boom at the tip of the coffer-dam, running down stream not less than 1,000 feet. The cost of this boom would be roughly estimated at about \$20,000.00. If, therefore, the intake construction is not started in time to complete by December 1st. of this year, about \$53,000.00 of extra expenditure will be necessary in order to supply the plant with water until some time in the spring or early summer of 1923.

The following documents are submitted as appendices to this report,-

Report on Experiments made at Dufferin Islands, Niagara Falls, on Chippawa Intake, First Season 1918.
R.W. Angus.

Report on Experiments made at Dufferin Islands, Niagara
Falls, on Chippawa Intake, Second Season 1919.
R.W. Angus.

Study of Intake for 15,000 cu.ft. /sec.

R.D. Johnson & P. Wahlman.

Design of Intake for 15,000 cu.ft. per sec.

R.D. Johnson & P. Wahlman.

A general description of Intake, Canal and Power House,
and their hydraulic features.

by- T.H. Hogg.

7/22/1962

Hydro-Electric Power Commission



of Ontario

Col. Sir Adam Beck, K.T., LL.D. CHAIRMAN
Hon. J. P. Lucas, COMMISSIONER
M. Col. Hon. J. Carmichael, D.S.O., M.C. COMMISSIONER
Frederick A. Gaby, CHIEF ENGINEER

Engineering Department

Public Address
"Hydro" Toronto
CODE-A.B.C 6TH EDITION

190 University Avenue
Toronto

ADDRESS REPLY ATTENTION OF

Dear Sir,

In respect to certain petitions received from your Township through your Council from time to time, requiring estimates on the cost of supplying power to such petitioners, I am instructed to advise you that all estimates forwarded by this Commission are hereby superseded on account of certain revisions adopted in the manner of serving Rural districts, and chiefly on account of the recent legislation bonusing Rural lines.

I am instructed to advise you that the supplying of power in rural districts shall be conducted after a manner outlined in the revised legislation, part 11-B of the Hydro Electric Power Commission Act.

It is required that a proper contract be executed between your Council and the Commission for a supply of power and to permit of the Commission constructing and operating the lines necessary to serve the customers.

The Commission will conduct the business associated with the rendering of service to your customers, and will properly account to your Council for all charges and revenue connected therewith.

Hydro Electric Power Commission of Ontario

Sheet

Users of power in your township will be required to sign a contract with the Township, and may choose, with certain limitations, classes of service outlined as follows:-

Class I - Hamlet service includes service in hamlets, where four or more customers are served from one transformer. This class excludes farmers and power users. Service is given under three sub-classes as follows:-

- I-A Service to residences where the installation does not exceed six lighting outlets or twelve sockets. Use of appliances over 600 watts is not permitted under this class.
- I-B Service to residences with more than six lighting outlets or twelve sockets, and stores. Use of appliances over 750 watts permanently installed is not permitted under this class.
- I-C Service to residences with electric range or permanently installed appliances greater than 750 watts.

Special or Unusual loads will be treated specially.

Hydro Electric Power Commission of Ontario

Class II - House Lighting - Includes all contracts where residences cannot be grouped as in Class I. This class excludes farmers and power users.

Class III - Light Farm Service - Includes lighting of farm buildings, power for miscellaneous small equipment, power for single phase motors, not to exceed 3 Horse Power demand, or electric range. Range and motors are not to be used simultaneously.

Class IV - Medium Single Phase Farm Service - Includes lighting of farm buildings and power for miscellaneous small equipment, power for single phase motors, up to 5 Horse Power demand, or electric range. Range and motor are not to be used simultaneously.

Class V - Medium 3 Phase Farm Service - Includes lighting of farm buildings and power for miscellaneous small equipment, power for 3 phase motors, up to 5 Horse Power demand, or electric range. Range and motor are not to be used simultaneously.

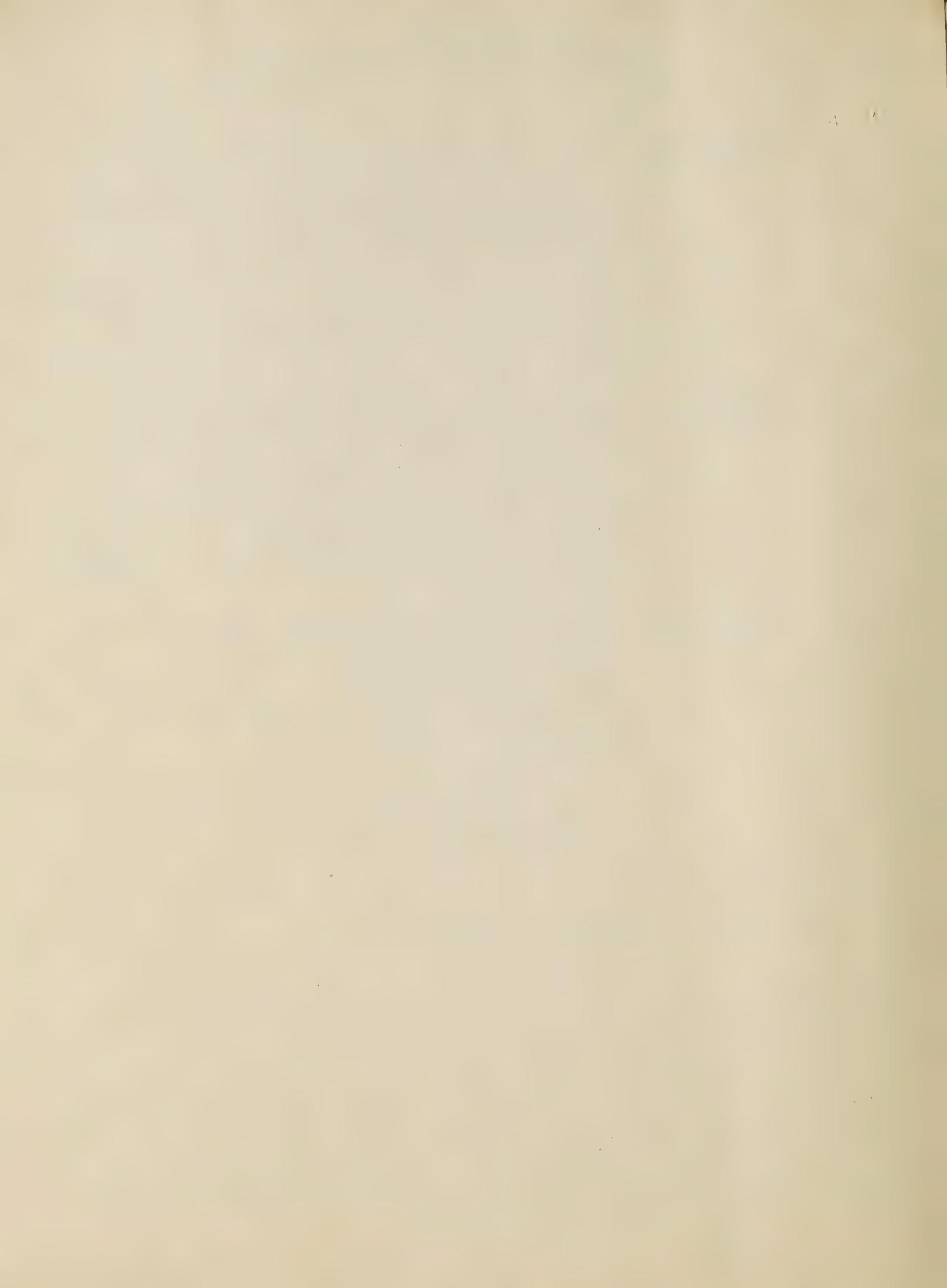
Class VI - Heavy Farm Service - Includes lighting of farm buildings and power for miscellaneous small equipment, power for motors up to 5 Horse Power demand, and electric range, or 10 Horse Power demand without electric range.

Class VII - Special Farm Service - Includes lighting of farm buildings, power for miscellaneous small equipment, power for 3 phase motors from 10 - 20 Horse Power demand, and electric range.

Class VIII - Syndicate Outfits - Includes any of the foregoing classes which may join in the use of a syndicate outfit, provided the summation of their relative class demand ratings is equal to the Kilowatt capacity of the syndicate.

The estimates on the cost of power delivered to users as herein set out as been based upon certain assumptions, some of which are as follows:-

The construction of the lines shall be undertaken and paid for by the Commission. The farmers in the vicinity of the roads along which the lines pass will assist in the construction and assistance will be paid for at a suitable rate of wage. Lines constructed from the line on the highway to customers' premises will be paid for by the



customer. The Commission proposes to supply the necessary expert labor to direct the construction of the lines and the installation of the equipment. It has been assumed that three farmers per mile of line, or the equivalent, are obtainable as an average for the entire district to be served. The supply of poles at low prices in the district or the vicinity of the district by efforts on the part of those desiring service will result in the reduction of the cost of construction and corresponding reduction in the cost of service. Co-operation resulting in the reduction of cost of construction is desired. The rates herein set out are also based upon a government bonus of 50% of the cost of primary lines constructed on the highway or along the right-of-way.

Charges for power delivered shall consist of two parts, namely, the service charge and the consumption charge. The service charge which constitutes the greater portion of the total cost of power delivered, consists of the operating, maintaining and fixed charges of the lines and equipment required to deliver the power to the users in the district. Consumption charges will be determined by a meter at each customers' premises, which will measure the quantity of power used to which a suitable rate will be applied. This cost can only be arrived at when the amount used has been determined. The rate used in the district will be determined by the cost of power at the transformer station supplying the district. The amount of power supplied to the district will be metered at the transformer station.

The meter rates for users in that part of your Township which will be supplied from are estimated as follows:-

6¢ per Kilowatt hour for the first 14 hours use per month of customers' class demand rating.

3¢ per Kilowatt hour for all remaining uses.

Less 10% for Prompt Payment.

The following table gives class demand rating, average monthly kilowatt hours, estimated consumption charge, estimated service charge, and total estimated annual cost for each class:-

Class	Name	Demand	Average	Est. Annual	Est. Annual	Total Est
		Rating	Monthly	Consumption	Service	Annual
		Kw.	H.P.	K.W.H.	Charge	Cost
		(a) $\frac{1}{2}$	2/3	10	5.52	23.11
I	Hamlet Service	(b) $\frac{3}{4}$	1	15	8.16	20.50
		(c) 2	2-2/3	150	57.72	36.44
II	House Lighting	1	1-1/3	15	9.48	30.05
III	Light Farm. Ser.	3	4	40	25.92	60.82
IV	Medium single phase farm ser.	5	6-2/3	70	45.36	66.94
V	Medium 3 phase farm service	5	6-2/3	70	45.36	84.50
VI	Heavy farm ser.	9	12	150	89.40	130.97
VII	Special	"	15	20	165.24	188.90
						354.14

The above costs are calculated from our knowledge of the use of electric power in rural districts under average conditions. They have been adjusted by applying the rates as set out herein.

Hydro Electric Power Commission of Ontario

For those unfamiliar with terms used in power measurement, it is to be noted that one Kilo-watt (K.W.,) is approximately equal to 1-1/3 horse power (H.P.,) or 3 K.W. equals 4 H.P., and a kilo-watt hour (K.H.W.) is the amount of electricity equivalent to one kilowatt used for one hour.

The rates will be re-adjusted by the Commission from time to time in your district to cover cost. Increase in the average number of farmers per mile or lower cost of power will reduce the annual costs to all.

The Commission upon request by your Council will send a representative to explain the method of rendering service to rural communities, and will assist your Council in securing contracts with individuals desiring service.

Yours truly,



Chief Engineer

Organization - Head Office - The Commission.

Winnipeg-Chippewa Power Development
Personnel
Records

Field Office -

Personnel
Records

Superintendence

Personnel
Records

Staff Relations in Detail

Contract Work - Invitation to tender
Contracts let.

Construction Plant - Description, weight and location of all plant used by force account, subdivided according to the basic elements of the development as set forth in the headings under "General Description", together with capacity and daily, minimum, maximum and average output of the more important machines.

Quantities - Quantities of work done of every classification, subdivided according to the basic elements of the development as set forth in the headings under "General Description."

Cost - Total cost of the work, completely defined. Cost of work done of every classification, sub-divided according to the basic elements of the development as set forth in the headings under "General Description".

Unit costs of work done of every classification.

Evolution of the Development -

Full information regarding estimates, revisions, and changes made from time to time in detail.



Comparison of Various Main Estimates and Actual CostDiscussions -

Quality of Work

Speed of Construction

Exigencies of Period of Construction -
Labour Market and
inefficiency

War Prices
Market generally
War Taxes
Exchange and so forth

General Design

Unit Costs

General

The Outlook.

(SGD) Walter. J. Francis.

MEETING OF THE BOARD OF TRUSTEES

AGENDA

Wednesday,
31st May, 1932.

1. Minutes.
2. Business arising out of Minutes.
3. Re Bayner See a.v. b/1/22
4. General Business.

b/1/22

THE CO-OPERATIVE INDUSTRY COMMITTEE.

A.G.M.P.A.

Monday,
20th May, 1912.

- ✓ 1. Minutes
- ✓ 2. Business arising out of Minutes.
- ✓ 3. Report of Secretary
- 4. Additional floor space
- 5. Arrangements with Clipping Bureau.

{ Mitchell + Hollinshed to
Dortmund
Simsbury

PCW/HBP.

INDO-PAKISTAN IN VILLAGE COMMUNITY

AGENDA

Thursday,
25th May, 1932.

- ✓ 1. Minutes,
- ✓ 2. Business arising out of Minutes.
- ✓ 3. Report of Secretary.
- ✓ 4. Number of copies to be made of Hyderabadi's material.
- 5. General Business.

B.M/H.P.

and to the Commission has been made known to the Government of Canada to investigate the past history of the Hydro-Electric Commission, and to suggest procedure for the future.

To this end the Government has asked specific questions of the Royal Commission, the answer to which must be given of the last 10 years, including quaries Nos. 1 to 7 inclusive of the reference and covering the Chippewa Development only.

In addition to the above, the Royal Commission is requested to extend its investigation to other activities of the Hydro-Electric Commission and to report thereon.

In Clause No. 9, the Royal Commission is directed to report the results of its investigation to the Government and to report evidence and facts.

(See Schedule "A" the Reference.)

This memorandum is based upon the suggestion that first consideration should be given to the Chippewa matter covered by quaries Nos. 1 to 7 inclusive, leaving other questions in abeyance for the moment, in which case the procedure might be as follows.

1. Present to the Hydro-Electric Commission for their answer quaries Nos. 1 to 7, covering the Chippewa matter, would indicate the nature of the information required by the Royal Commission in order to answer the specific questions of the Government. (See Schedule "B")

2. After receipt of the answers to Schedule "B" and their consideration by the Royal Commission and its engineering, actuarial and legal advisers a further set of questions upon specific points will probably be necessary on the Chippewa development.

(Here insert Schedule "A" corrected to the wording of the reference.)

To be submitted to the Hydro-Electric Power Commission for copy and covering only the Chippewa Development, comprising inquiries Nos. 1 - 7 inclusive of Schedule "A".

1. "All estimates, financial and otherwise, made by the Chippewa Development Company, and all documents submitted by the Chippewa Development Company to the Government covering the Chippewa Development".

Copies of these documents would be desirable, but if too voluminous originals may be acceptable at the option of the Royal Commission.

2. "Reasons for the increase from time to time in the estimates for the Chippewa Development".

(a) A progressive summary of comparative general items would be desirable, showing increases, diminutions, and differences in the estimates given in No. 1, with reasons.

(b) Supporting facts covering quantities, unit prices, labor rates, working rates, elapsed time, financing, etc., used in computing estimates.

(c) General considerations in the situation which suggested to the Hydro-Electric Commission the advisability of increasing the power development.

(d) What should the cost have been if the prevailing prices for labor and materials in 1916 had been continued and the efficiency of labor maintained at that of 1916.

3. "The total cost of the completed Chippewa Power Development".

(a) with five units installed.

(b) with units installed to the full capacity of the canal.

(m) Statement of cash payments to April 1st, 1922,
" " Commitments on Contracts to April 1,
1922,
" " Contingent liabilities to April 1'22
" " As ruling " " " "

(n) Estimated cost of completion of Canal and general works and of power houses and equipment for the five units not included in (m) from April 1st, 1922.

(o) Estimated financial and revenue changes to be added to above to cover interest, discount, management, etc., from April 1st, 1922.

(p) Total estimated cost of the completed Chippewa Power Development, including all variable expenses and direct costs of construction of five unit plant.

(q) A copy of the order for construction and delivery of the Chippewa Power Development, and a copy of the contract for the same.

(bb) Suggested time needed by for the construction and installation of each unit from No. 6 to No. 10 inclusive assuming them to be installed individually and at the same rate, and the estimated date of requirement assuming that the Ontario Power Company estimates to operate at the full load.

(bb) Construction costs unit by unit as above in general detail.

(cc) Bonded indebtedness to cover above at various dates chosen to cover all expenditure for construction, overhead, financing, etc.,

• "The maximum output capacity of the station development under the conditions mentioned in Clause 3".

(a) A full technical of all kinds efficiency, cost estimates, cost of steel, cost of concrete, etc., to support the same.

(b) The possibility of using power stations and a company by dividing in the total capacity under clause 3, 10%.

(c) The method of construction, supervision and control which are to be employed in the building of the station and the time when they will probably be completed for the economic completion of the work".

(a) Costs and commitments properly chargeable to the station, for the following general categories with supporting figures and explanations.

(b) Estimating and preliminary work necessary to the designing of plant and investigations carried on during construction.

(c) Planning and designing with engineering supervision of the plans actually carried out.

(d) Over head cost and supervision of work carried out by the Commission acting as contractors and Engineers.

(e) Engineers' fees and engineering supervision on contracts let to others.

(f) Costs of work carried on by the Commission as contractors and Engineers.

(g) Cost of work carried on by other contractors, Commission acting as Engineers.

(h) What consideration determined contracts being let or work carried on by the Commission on day work.

(i) The main items of construction plant account apart from tools chargeable to materials (i.e. No. 1000) condition, and probable recovery value.

(j) Total and unit cost of earth excavation, rock excavation, embankment, riprap, concrete, lining of canal, dredging, filling, earthworks, foundations, formwork, etc.,

(k) Time construction schedule set and actual progress in main items of construction on contract.

(l) Actual average and maximum production of main construction materials, etc.,

6. (a) "The quantity of water now available for use by means of the Nipigon Canal."

(b) "The power that can be developed thereby in continuous output at the Queenston Power Station".

(c) A statement of the water available under the treaty as interpreted by the Government, the Joint Commission, and the Hydro-Electric Commission, with discussion of differences and possibilities for future increased diversions.

(d) Under assumed efficiencies to be given what power will be available under the pump-discharge interpretations of (a).

7. "In what manner and to what extent will the price of Niagara power be affected if at all by the cost of the Chippewa development".

(a) Costs of power at Niagara Power Board per unit in detail of capital, operating, maintenance, supplies, etc., during continuation of hydro-electric operations to 1922.

(b) Costs of power as above estimated yearly, for the next ten years with estimated loads and Ontario Power Company running full, and all the water required available.

(c) Costs of power as above estimated yearly for the next five years with estimated loads and Ontario Power Company shut down completely with all the water required available.

(d) From the above deduce the best combination of use of Ontario and Chippewa Plants to produce minimum cost of power with all the water required available.

(e) Should present treaty restrictions continue what effects on the cost above could be produced.

(f) The results of "a" up to "d" might well be shown as curves of horsepower cost for the total period.

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~~SECRET~~ ~~CONFIDENTIAL~~ ~~DO NOT MAIL~~

ANNUAL STATEMENT OF EXPENDITURE
Upon the Accounts of the Hydro-

Electric Power Commission of
Ontario for year ending
31st October, 1920

On the 29th July, 1920, the Commission entered into an agreement with the Hanson Portland Cement Company Limited whereby that Company agreed to convey to the Commission an option which it held on a stone quarry in the vicinity of Elliotton. Under the option so conveyed the Commission purchased the quarry on 1st August, 1920, paying therefor the sum of \$10,000. And to 31st October 1920 the Commission had expended \$6,554.37 in improvements to the property, constructing a railway spur to it and the purchase of quarry equipment, thereby increasing the investment to \$16,554.37.

The expenditures upon such quarry are included in the above as part of the expenditures made in respect of the Niagara Power Development, for the reason that for the time being practically all the stone taken from the quarry is consigned to the manufacture of cement which is being used on the construction of the Shippagan Dam.

The agreement between the Commission and the Hanson Portland Cement Company Limited is to remain in force for a period of two years from 1st July 1920 and is renewable by the Commission as it may require. Under the terms the Company agrees to produce stone from the quarry at cost plus an overhead profit calculated at so much per barrel. Upon the termination of the agreement the Company agrees to purchase the stone quarry and equipment at cost to the Commission less fair allowance for depreciation. According to the agreement the Commission agrees to use cement only for the purpose of the Commission, the municipalities under contract with it, the subsidiary companies and the Central Ontario System.

1860. 10. 22. 10. 22. 10. 22.

1860. 10. 22. 10. 22.

1860. 10. 22. 10. 22.

1860. 10. 22. 10. 22.

1860. 10. 22. 10. 22.

1860. 10. 22. 10. 22.

GENERAL MEETING

APRIL 22, 1922.

Friday,
26th May, 1922.

1. Minutes.

2. Business arising out of Minutes.

3. Report of Mr. Landis

Number of copies to be made of Mr. Landis' material. (S)

4. Report of Secretary.

5. General Business.

200/150.

Memorandum for Mr. McMillan

May 1st, 1935.

Royal Commission, Ontario Hydro-Electric Power Commission Inquiry
Water Power Development

Preparation of Preliminary Data

The Construction-Development

Preliminary - Preliminary considerations - Dates,
Immediate Power needs,
Future Power needs

Design Period - Dates
Studies
Decisions

Construction Period - Dates
Sequence of Operations

Present Status

Advisory Reports In General.
Recommendations adopted.
Reports in Detail as far as necessary
(As Appendix)

Water Available - Elevations.

Flow

Hydraulic capacity of various elements of
development.

General Description - Right of Way and Crossings.

Intake

Welland River

Canal

Forebay

Screen House

Penstocks

Power House -

(The Building
(Turbines
(Generators
(Service Plant.
(Auxiliary Plant
(Electrical Equipment
(Accessories
(Machinery

Fall Race

LIBRARY OF THE HOUSE OF COMMONS
LIBRARY OF THE HOUSE OF COMMONS

Quebec,
Wednesday
10th May, 1921.

The following documents are proposed herewith:

1. Journal of Political Economy for January, 1921, published by University of Chicago - 1 copy.

Containing article by Robert M. Coates
"The Ontario Power Commission; Its Origin
and Development".

2. Memorandum prepared by A. G. Ross for DPC for the
Speaker - 1 copy from the custody of Mr. Rollin, to be
retained.

The principal significance of this
memorandum at the present time lies in
the fact that it sets out the legal
rights and conditions surrounding the
private power companies operating at
Niagara Falls, with possible means of
compelling these companies to supply
power or of securing a supply of water
to develop a competing generating system.
It was apparently not contemplated at
that time that the companies would be
bought out.

3. Original copy of the Act of 1906 as read in first reading
from the files of the Legislative Assembly, to be
retained immediately.

4. Original copy of the Act of 1906 as passed in Committee.
From the files of the Legislative Assembly, to be
retained immediately.

5. Memorandum prepared by Mr. J. A. Rollin for Mr. H. H.
Dunn regarding certain conditions of authorizing by
the Ontario Electricity Power Commission, as pointed out
in the Niagara report, and supporting resolution.

6. Book "The Niagara Experiment" by R. P. Rollin, 18
Quebec, Canada, dealing with the Niagara-Electric Power
Commission of Ontario - Copy borrowed in name of
Leighton Foster from Legislative Library.

7. Report "The Electro Development in Ontario" by
R. P. Rollin.

Mr. Harris brought up the question of the count inventory which Mr. Mitchell is making at Niagara. It was decided that this inventory would be useless to the Inquiry Commission as it does not take into consideration the question of depreciation, being merely a straight count of supplies, but it might be possible for the Inquiry Commission's men to work in conjunction with General Mitchell.

It was understood that Mr. Harris when he was at Niagara would find out how long it would take General Mitchell to finish his inventory.

It was suggested also that the Chairman should arrange to have General Mitchell's instructions extended so as to include an estimate of depreciation.

Mr. J. A. Ross

HYDRO-ELECTRIC INQUIRY COMMISSION.

MEETING OF 11TH MAY.

Toronto,
May 11th,
1922.

Mr. Gregory read a letter from the Secretary of the Hydro-Electric Power Commission stating that arrangements had been made for a Joint Meeting of the Inquiry Commission, the Power Commission and the Government, early next week, and asking for a copy of the Minutes of the meeting with Sir Adam Beck.

Mr. Francis stated that Sir Adam Beck desired to agree that our Engineers had his authority to work with his men. The first thing that should be done is to go into all accounts and for this purpose it would be well to coordinate with Mr. McCollum, the Municipal Auditor. It was proposed that they confine themselves in the meantime to the Chippawa work.

Mr. Francis thought that the first thing necessary was to find out just what was to be expected of the Hydro Commission staff. The man next below Mr. Gaby would be the man whose time would be largely occupied.

This brought up the question of charges to be made against the Inquiry Commission.

Considerable discussion ensued as to the number of copies that should be made of material. Mr. Francis stated that up to the present six copies had been made, three to be retained by the Hydro Commission and three to be given to the Inquiry Commission. He thought that one copy for each, instead of three, would be sufficient in most cases. He pointed out that in the case of maps, considerable hand work was necessary and this was expensive.

It was understood that the question of any charges to be made by the Hydro Commission should be left in abeyance until after the Joint Meeting on Monday, but that Mr. Gregory should in the meantime write to the Hydro Commission requesting that a statement of charges incurred should be made up as up to Monday next.

Mr. Francis stated that his office accommodation was not satisfactory and after some discussion as to where other offices might be obtained it was decided that it would be desirable to have the "Engineer" of ice either in this building or in the Hydro Building. It was understood that Mr. Gregory would confer with Mr. Gaby to see if it were possible to arrange for offices in the Hydro Building or vicinity, failing this, it was thought space might be obtained in this building.

monday and the quail shot. On the 20th we had a short walk
and then had a long walk in the hills. We found a number of
quail and some other birds. We had a long walk back to the
camp. We had a good time and were very happy.

On the 21st we had a short walk in the hills. We found a number
of quail and some other birds. We had a long walk back to the
camp. We had a good time and were very happy.

On the 22nd we had a short walk in the hills. We found a number
of quail and some other birds. We had a long walk back to the
camp. We had a good time and were very happy.

On the 23rd we had a short walk in the hills. We found a number
of quail and some other birds. We had a long walk back to the
camp. We had a good time and were very happy.

On the 24th we had a short walk in the hills. We found a number
of quail and some other birds. We had a long walk back to the
camp. We had a good time and were very happy.

On the 25th we had a short walk in the hills. We found a number
of quail and some other birds. We had a long walk back to the
camp. We had a good time and were very happy.

On the 26th we had a short walk in the hills. We found a number
of quail and some other birds. We had a long walk back to the
camp. We had a good time and were very happy.

On the 27th we had a short walk in the hills. We found a number
of quail and some other birds. We had a long walk back to the
camp. We had a good time and were very happy.

Mr. Landis brought up the question of the method of procedure in getting the information necessary for his work. He reported that he had been going over the Hydro-Electric Legislation and the Auditors' reports with a view of getting a general view of the work.

He proposed with Mr. Francis to go to Niagara on Saturday to get a bird's eye view of the Chippawa work.

As to the more detailed examination of the account of the Hydro Commission he was delayed in the meantime by the requirement of the Hydro Commission that specific requests for information should be submitted in writing by the Chairman.

The Commission felt that in view of the interview with Mr. Clarkson and subsequently with Sir Adam Beck, the Hydro Commission would probably recede from this position. It was thought that if the Chairman took the matter up with Mr. Clarkson the matter could be arranged.

Some further discussion took place as to the propriety of making any charge against the Inquiry Commission for the information supplied by the Hydro Commission.

Mr. J. L. Ross asked Mr. McClelland and Mr. Landis for their opinion as to whether it would be proper for the Hydro Commission to make this an Over-Head Charge, which would be absorbed by the Municipalities in the cost of Power.

Mr. McClelland and Mr. Landis expressed their opinion that it would be perfectly proper to make this charge.

It was suggested that Mr. Landis should go carefully into the question of the charges which had been met by the Government in the case of Municipalities where the Hydro Commission had made an investigation, or performed other services, but in which no contract had been made to take Power. It was thought that the General Funds supplied by the Government might also be found to have been charged with advertising and it was suggested that the auditors look into this.

It was further suggested that the local Municipalities might have been charged in their power account for an item of advertising and that if this were so it would justify the position that the Hydro Commission might properly absorb the charges for the Inquiry Commission.

Mr. Laney suggested that Mr. Landis fix out while at Chippawa the system of checking the pay rolls and time keepers, and then, if necessary, check some of the pay rolls.

22nd

APPENDIX

Stage of development of electric power transmission in Ontario in 1902. (See Report on "Municipal Trading" prepared by Avera Purdon for Select Committee of H.M. Govt. appointed by Local Gov't.)

Comparison with other Provinces.

Ontario -- John A. Carter, Transmitted Electrical power 2 miles at Georgetown in 1886 -- first in the world?

Comparison with the United States.

Comparison with other Countries.

Incidents giving rise to original scheme of Hydro Electric System.

Coal Strike in Pennsylvania in 1902
Suggestion of Lord Dufferin in 1891 of National Parks at Niagara.

Opening of Victoria Falls, Niagara Falls, May 24th, 1886, Cost \$525,000.

Disappointing revenue from concessions and consequent leasing of power rights.

Franchises of Private Companies at Niagara Falls.

International Practices controlling Motor Supply.

Burton Act.

International Waterways Comm.

Initiation of Hydro Electric Scheme

(John Retzweiler -- F.W.H. Baulder -- Secretary of Power Works -- Mayor at Berlin -- Meeting at F.W.H. Berlin -- Internal meeting at Berlin June, 1902 -- Baulder (Chairman), Retzweiler, (Secretary). Present -- Adam Cook, Ald. J. J. Gleeson, W. Mitchell, -- adjourned meeting July -- appointed committee composed of Baulder, Retzweiler, and Spence.)

Early Estimates of Funds for Power

Early Engineering Reports

Political History

History of Early Legislation

(Application of City of Toronto, Jan 1903
for Private Bill to authorize transmission of
power -- application refused on ground fin-
ancial obligation was for benefit of particu-
lar section of Province.)

Meeting February 17th, 1903 to receive report
of Committee.

Meeting in Toronto February 7 1903.

Delegation February 1903, -- Snider and Snell --
Spokesmen.

Advocated cooperative municipal scheme. Also
promised legislation authorising scheme.

1903 Attorney, Opposition Leader, criticised govt. for
(not) granting franchise to electrical development
company and urged no objection of formalisation of
Enquiry.

1903 Government appointed special committee to report
on the municipal ownership or operation of
public utilities. Seven members (See, 1) London

1903 Government passed "Act for the construction of
Municipal Power Works and the Transmission,
Distribution and Supply of Electrical and Other
Power and Energy."

1905 Rep's of 7 municipalities set up under authority
(See) above Act. Appointed investigation Commission--
(Snider (Chairman) Ellis, Cockshutt, Beck,
Fessenden, (Waterloo, Ont.) Delight, (Barrister,
Waterloo-Kan. See'y) Ross & Holgate (Engineers
Montreal) made technical investigation at cost.

The fund for investigation was provided by
municipal subscriptions amounting to \$15,000,
of which Toronto contributed \$11,756 and London
\$1,542.

1900 Report of Dufferin Commission and Report of
(Hon.) Arthur V. White presented to public.

1903 Whitney returned as premier in general election
had stated in campaign that Niagara should be
as "free as the air".

1905 Whitney repealed Act of 1903 and passed an Act
(July) creating the "Hydro Electric Power Commission
of Ontario".

Beck appointed member of Cabinet to work out
power policy of Province. Appointed Chair-
man of the Commission. Mr. Matheson of
Preston and Mr. Ellis were the other Com-
missioners.

Cecil B. Smith appointed Engineer to make
survey of water power sources for Province
5 reports. (Binger 49)

Appointment of Permanent Commission.

Hon. Adam Beck (Chairman)
Hon. J.S. Hendry
Hon. W.K. McNaught

History of Construction of Niagara Transmission System.

Original Plan
Changes
Extensions.

Administration during construction Period.

Relations with Generating Companies.

Effect of Hydro Electric System on Veated and other Private Interests.

Expropriation
Private Systems
Contests with Adverse Interests.

Growth and Development of Niagara System

Acquisition of Ontario Power Company

Circumstances leading to acquisition
Acquiescence of Municipalities
Method and terms of acquisition.
Authority for acquisition.
Ownership of Property
Responsibility for indebtedness
Prospects of liquidation
Relation to Chippewa Development
Construction of Third Pipe Line
 Circumstances leading to construction
 Authority for construction
 Permanency of work
 Appropriation for payment
 Amortization of cost
 Effect on cost of power
 Justification for undertaking.

Relation of Hydro-Electric Power Commission to Government

Powers of Commission

Relation to Executive Council
 In Law

 In Practice

Fiscal Relation

 Responsibility for Expenditure

 To the Government
 To the Municipalities

 Authorisation of Expenditure

 Exceeding appropriations
 Carrying appropriations

 Methods of Check and Control

Relation of Auditor to Commission.

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Grand Island 1900

J. A. Ross.

HYDRO-ELECTRIC INQUIRY COMMISSION

TORONTO
Thursday,
May 11th, 1922.

The Commission met at 11 a.m.

Present:-

The Chairman
Mr. M. J. Haney.
Mr. R. A. Ross,
Mr. J. A. Ross,
Mr. Lloyd Harris

and the Secretary.

and Walter J. Francis
and Mr. P. Landis
and Mr. McClelland

For proceedings see attached Memo of Discussion.

Secretary

F.W.W./ L.L.

U. S. Rose.

НОВОСИБИРСКИЙ ГИДРОГЕОЛОГИЧЕСКИЙ

ОТКРЫТО
СОВЕТСКОЙ
СОЮЗНОЙ
РССР

ИЗДАНИЕ ИЗДАТЕЛЬСТВА УЧЕБНО-ПЕДАГОГИЧЕСКОЙ

СЕВЕРНОЙ АКАДЕМИИ

ИЗДАТЕЛЬСТВО УЧЕБНО-ПЕДАГОГИЧЕСКОЙ
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ИЗДАТЕЛЬСТВО УЧЕБНО-ПЕДАГОГИЧЕСКОЙ СЕВЕРНОЙ АКАДЕМИИ

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